On dividing the above-given equivalent weights 0 «W kilogrammes, and 002 = 44 kilogrammes by the respective \\rights of 1 cubic metre of 0 = 1-4804 and 1 cubic metro of 0(1. •--1-9781 (in both cases under normal conditions) \vo obtain 32-f-l-480-i=22-8 cubic nud.res Ol 44-r-l-9781=22-8 cubic metren CO*1

These results show that 22'8 cubic motrow 0, on combining with carbon, furnish 22'3 cubic inotron (.H)a, or, in ol!n-r words, that, from 1 cubic metro (.), 1 cubic metro CO.j is produced . . . (2).

Further, as within the temperatures undor ronsitlmition 0 and COa appear as permanent ganiw, entirely eqtttilly altered in volume with varying pressure and varying h-m-perature, it follows that the abovo relations art* not only valid for the normal conditions, but thoir validity ronmins for nil cases in which 0 and COg are under equal conditions. But the same is valid for all gases remaining to be hereby the advantage is clearly perceivable, that are continued in volumes. As an instanco, tho applirulium immediately following will serve.

In the combustion of carbon, pure oxygen in not emplnyrd, but atmospheric air, which in addition to iil per cent. O, mn. • tains 79 per cent. N. If the oxidation of the (3 tnki'H plan* with precisely the theoretically requisite quantity of OXV^HI, then from the 21 volumes of 0 there result 21 vohnnos of (*tl,f, whilst the 79 volumes of N remain unaltered, (.'onsi'ipit'mly, the reaction results in a gas of tho composition 21. pur et*ut, C02, and 79 per cent. N or 100 per cent, product of roni-bastion. In this gas the nitrogen is determined according lit the formula

79 N=^f COa=8-7()2 00a . («).

&L

In simple manner further the quantity of gas wbidi IH obtained from the unit of weight of carbon admits of duti'i1-mination. As 12 kilogrammes C develops 44 kilu«raiuini?H

1 One obtjiiriH hcr^frorn exudly 22-37 cubic iud.rt*« () ami UiMM ruhlf uji-iit-* C0a, which is inaccurate, an the atomic weights O-UJ untl t!,42 un- \n,\ precise, but only approximate.